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STUDIES OF PERUVIAN BIRDS. V

THE GENERA *HERPSILOCHMUS*, *MICRORHOPIAS*, *FORMICIVORA*, *HYPOCNEMIS*, *HYPOCNEMOIDES*, AND *MYRMOCHANES*

By John T. Zimmer

In continuance of the systematic review of Peruvian birds, of which four numbers have already appeared,[1] there is presented herewith the report on six genera of Formicariidæ. In the study of *Hypocnemis*, so much extralimital material was examined that it has been adjudged desirable to include notes on all the members of the genus.

I am indebted to the authorities of the Field Museum of Natural History, Chicago, and the United States National Museum, Washington, for the generous loan of certain comparative material used in this study.

Names of colors when capitalized indicate direct comparison with Ridgway's 'Color Standards and Color Nomenclature.'

Herpsilochmus axillaris (Tschudi)

Th(amnophilus) axillaris Tschudi, 1844, Arch. Naturg., X, (1), p. 278—Perú (north to about 10° S. lat., east of the Andes); ♀; Mus. Neuchâtel.

The material at hand is not at all satisfactory for the determination of the variations within this species. A female from Tulumayo, Junín, is probably nearly topotypical (since Tschudi did not travel north in central Perú farther than the Cerro de Pasco region, somewhat short of 10° S. latitude), and agrees well enough with Tschudi's description, including the white face. A male from the Río Tavara seems to go well with the female. In both examples the white on the rectrices is relatively narrow on the third and fourth pairs (counting from the exterior), exposing more or less of the dusky subterminal portions; the female also has some dusky marking exposed on the bases of the outermost feathers. The under parts are relatively dull, pale yellow.

A female from Huarandosa, Río Chinchipe, Perú, and a male from the lower Sumaco, eastern Ecuador, are somewhat different. Both are rather deeper yellow below, the female strikingly so. The auriculars

[1] American Museum Novitates, 500, 509, 523, and 524.

are more yellow than white; the white tips of the rectrices completely conceal all traces of dusky subterminal areas in the closed tail (though this may be due to their being less worn than those of the birds from farther south). The upper surface of the female is a little brighter olive than that of the Huarandosa female, and the crown is duller brown posteriorly, with the feathers distinctly tipped with dusky. The male has little trace of blackish centers on the feathers of the mantle (so noticeable in the Río Tavara male), and the white spots of the crown are, if anything, broader and more conspicuous than in the Río Tavara skin; the lores are more extensively pale in both sexes from the north.

However, a female I collected at Huachipa has the auriculars yellowish and the under side of the body bright yellow, agreeing best with the Huarandosa skin. Dr. Hellmayr records a female from Huaynapata, Marcapata, which he found to agree closely with Tschudi's type. Tschudi's description of "Gesicht . . . weisslich" would seem to indicate more white on the face, but Taczanowski says "joues jaunâtre" for both Tschudi's type and his own *puncticeps* from Huambo, which he says are identical except for certain differences that he notes. The supposed characters of Taczanowski and Berlepsch's *H. a. aequatorialis* are not borne out by the Ecuadorian male at hand; the female was said to be no different from Peruvian females. If separable, the Huarandosa female should belong to it. Consequently, though we have evidence of noticeable differences in various specimens from diverse localities, and two additional names are available by which to designate any separable forms, it will require more material than now exists in all recorded collections to determine the advisability of recognizing more than the single form.

The female from Tulumayo has an added character in the distinctly brownish tone of the exterior margins of some of the remiges, probably due to immaturity.

SPECIMENS EXAMINED

H. axillaris.—PERÚ: Tulumayo, Junín, 1 ♀; Río Tavara, 1 ♂; Huarandosa, Río Chinchipe, 1 ♀; Huachipa, 1 ♀.[1] ECUADOR: lower Sumaco, 1 ♂.

Herpsilochmus pileatus motacilloides Taczanowski

Herpsilochmus motacilloides TACZANOWSKI, 1874, Proc. Zool. Soc. London, p. 136—Maraynioc; ♂ immature; type formerly in Warsaw Museum, now lost.

The present subspecies is much more distinct from *p. pileatus* and *p. atricapillus* than these two are from each other, judging by some puzzling

[1]Specimen in Field Museum of Natural History, Chicago.

material at hand from eastern Brazil. The black or blackish spot on the lores in both sexes of the Peruvian birds, the yellowish tone of the under side and the olivaceous tone of the upper side in the males, and the brownish backs, pale buffy yellow under parts, and deep ochraceous brown foreheads in the females are quite positive characters. The amount of white on the tips of the rectrices is also at the maximum in both sexes, but is not always diagnostic.

Contrary to the statement of Dr. Hellmayr (Field Mus. Nat. Hist. Pub., Zool. Ser., XIII, pt. 3, p. 173, footnote *a*, 1924), males of this form may have a noticeable amount of white on the interscapular region. Both of the males at hand have quite extensive traces of subterminal white and very heavy black tips.

Previous records are from Maraynioc, Idma, Garita del Sol, and La Gloria.

SPECIMENS EXAMINED

H. p. motacilloides.—PERÚ: Idma, above Santa Ana, 1 ♂, 2 ♀; Utcuyacu, Junín, 1 ♂, 1 ♀.

Herpsilochmus rufimarginatus subspecies

I regret that there is no material of this species from Perú available for study. According to Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 3, p. 178, footnote *a*, 1924), the birds from Perú and Matto Grosso, Brazil, are intermediate between *r. rufimarginatus* and *r. frater*, having the males like the former and the females like the latter. They thus present the same curious situation to which I called attention in my description of *Myrmotherula axillaris heterozyga* (Amer. Mus. Novit., No. 524, p. 7, 1932). If persistent over the range of territory indicated, these characters should entitle the possessor to a name which I am unwilling to give in the absence of material. Peruvian records are from Monterico and Yahuarmayo.

Microrhopias quixensis albicauda Carriker

Microrhopias quixensis albicauda CARRIKER, 1932, Proc. Acad. Nat. Sci. Phila., LXXXIII, p. 465—La Pampa, Sándia, Dept. Puno, Perú; ♂ ad.; Acad. Nat. Sci. Phila.

Two males and a female from the Río Tavara are nearly topotypical and are recognizably distinct from *bicolor* from the Rio Madeira though not entirely as described for *albicauda*. Some of a long series of *bicolor* approach these very closely in the amount of white on the rectrices, and

several females are darker rufous below than the Río Tavara skin of the same sex. Carriker gives the average length of the white tips on the rectrices but does not give the range of variation, nor does he state whether this measurement was taken along the shaft or along the greatest extension on either web away from the shaft. No other measurements are given except the statement that the bill averages one millimeter longer than in *bicolor*.

The small series at hand shows the males with wing, 27.25–58 mm.; tail, 53.75–54.75; exposed culmen, 11.5–13.25; culmen from base, 15.75–16; tarsus, 17.75–18. Female: wing, 58.25; tail, 55; exposed culmen, 13; culmen from base, 16.75; tarsus, 17.25.

To these measurements may be added those recorded by Hellmayr (Arch. Naturg., LXXXV, A, (10), p. 102, 1920) regarding birds from Yahuarmayo and Cosñipata. Nine males: wing, 57–62 mm., tail, 52.5–60; culmen (exposed ?), 14.5–15. Four females: wing, 55.5–59; tail, 50–57; culmen, 13.75–14.5.

Males of *bicolor* have the following range of measurements: wing, 51–56 mm.; tail, 44.25–52 (–54, ex Hellmayr); exposed culmen, 12–13.5; culmen from base, 15.25–16.5. Females: wing, 49–54; tail, 45–50.5 (–51, ex Hellmayr); exposed culmen, 11.5–13.5; culmen from base, 15.25–16.75.

Compared with *bicolor*, therefore, the wings and tail of *albicauda* are distinctly longer, but there is no difference in the length of the bill. The white tips on the outermost rectrices in the Río Tavara *albicauda*, measured along the shaft, are 23.75–27 mm.; on the web, 25–27. In *bicolor* the figures along the shaft are 14.5–19.5. On the fourth rectrices, from the outside, along the shaft, the Río Tavara skins of *albicauda* show 20–23 mm.; on the webs, 23–30. In *bicolor* the range is, along the shaft, 3.5–18; along the webs, 9–26.5. Thus *albicauda* has a greater average extension of white on the tail, as pointed out by the describer. An easily recognizable difference seems to be on the next to the middle pair of rectrices which in *albicauda* have a large terminal spot, but in *bicolor* are either without white or with a small white tip, decidedly smaller than in *albicauda*. The upper surface of the females is largely black, with the head and neck as dark as the mantle, not gray as in *bicolor*.

Carriker's assignment of the Río Comberciato male (recorded by Chapman in 1921) to his *albicauda* is hardly justifiable on geographic grounds. I have discussed this specimen further under *nigriventris*.

Microrhopias quixensis intercedens, new subspecies

TYPE from Sarayacu, Río Ucayali, Perú. No. 238,202, American Museum of Natural History. Adult female collected July 17, 1927, by Carlos Olalla and sons.

DIAGNOSIS.—Similar to *M. q. bicolor* of the Rio Madeira but slightly larger; females much blacker above. Like *M. q. albicauda* of southeastern Perú in size and dark dorsal coloration of the females, but white tips of the rectrices shorter, as in *bicolor;* females with under wing-coverts and axillars tinged with pink as in *bicolor*.

RANGE.—Lower Ucayali and adjacent parts of the south bank of the Amazon east of the Ucayali.

DESCRIPTION OF TYPE.—Upper surface black; feathers of top of head with blackish-gray margins distinguishable from the rest of the feathers only in certain lights; feathers of mantle with white basal portions making a large concealed patch; forehead and lores slightly grayish black; subocular region, auriculars, and sides of neck black. Entire under part of head and body deep Sanford's Brown; thighs black with whitish or pale rufescent tips. Tail graduated for 14 mm.; middle two pairs of rectrices uniform blackish; fourth pair (from without) with white tips measuring 12 mm. (right) and 13 mm. (left) on the shaft (17 mm. on longest extent on the outer webs); third pair, 17 on shaft (23 on outer web); second pair, 20 on shaft (24 on outer web); outermost pair, 17 on shaft (23 on outer web). Remiges Fuscous-Black, exterior surface deep black; greater and median wing-coverts and alula largely black with a rounded terminal spot of white, much the largest on the greater series, obsolete on the inner primary-coverts; the lesser coverts along the radial border pure white, those immediately adjacent with white bases and black subterminal portions tipped with a small rounded white spot (as in the median series), making a broad, white shoulder patch; under wing-coverts and inner margins of remiges (except at tip) white; axillars white with a pinkish tinge. Bill and feet black. Wing, 55 mm.; tail, 47.75; exposed culmen, 13.5; culmen from base, 17; tarsus, 17.25.

REMARKS.—Males uniform black above and below except for white interscapular patch, white tips on rectrices, white spots on upper wing-coverts and axillars, white area on shoulder, and white wing-lining which are as in the female except that the axillars are not pinkish but pure white (white on inner primary-coverts not obsolete in the two males and one of the females).

The white on the outer rectrices varies between 15.5–26 mm. along the shaft and 17.5–27 along the web (there is only one feather showing 26 and 27 mm.; its mate on the opposite side of the tail has only 22 and 23); on the fourth pair it varies between 5–20 along the shaft and 17–23 along the web. The type is the only example with no white on the fifth pair of rectrices; the others have a fairly large spot at the tip occupying both webs. The feature is somewhat variable also in *bicolor*, though not to the extent shown here. None of the *bicolor* examined have as much white as some of the specimens of *intercedens*.

I am not sure that I would separate *intercedens* from *albicauda* if it were not for the separation of their respective ranges, though to unite

them would necessitate reducing the average measurements given for the extent of white on the tail of *albicauda*. More important is the question of distribution. The female of *intercedens* from Orosa shows indications of transition toward the gray anterior upper parts of *bicolor* (though Hellmayr records a blackish-backed female from Teffé), and connection by that route is not very probable. The region of Sándia and the Río Tavara is in the drainage of the Madre de Dios and its tributaries; the Beni, into which the Madre de Dios empties, is occupied by *bicolor* which closes that avenue of connection. Sándia is in the upper level of the Tropical Zone; Sarayacu is in the lower level, and the Ucayali on its upper reaches is occupied by *nigriventris* which blocks a third possible, though unlikely, means of connection.

It seems evident, therefore, that the similarity between *albicauda* and *intercedens* is caused rather by parallelism than by strict genetic relationship, in which case smaller differences may serve as criteria for separation than in the case of contiguous ranges.

Microrhopias quixensis nigriventris Carriker

Microrhopias quixensis nigriventris Carriker, 1930, Proc. Acad. Nat. Sci. Phila., LXXXII, p. 368—Puerto Yessup, Dept. Junín, Perú; ♀ ad.; Acad. Nat. Sci. Phila.

I have not seen females of this interesting subspecies, which appears to be confined to the upper Río Ucayali and Río Urubamba. Lower down the Ucayali, its place is taken by *intercedens*.

The male from the Río Comberciato, Urubamba Valley, recorded by Chapman as *Microrhopias bicolor* subspecies, should be referred to *nigriventris* and not to *albicauda* as was recently proposed by Carriker. The specimen, kindly loaned to me by Dr. Friedmann of the U. S. National Museum, has distinctly less white on most of the rectrices than *albicauda*, though it agrees with *albicauda* in size. The Río Comberciato is in direct zonal connection with the upper Ucayali but is quite cut off from the upper Tambopata and Madre de Dios drainages, the home of *albicauda*. The logical association of the Río Comberciato skin is, therefore, with *nigriventris*, at least until further evidence is made available by the collection of a female in that region.

Microrhopias quixensis quixensis (Cornalia)

Thamnophilus quixensis Cornalia, 1849, 'Vertebr. Syn. Mus. Mediol. extant. Osculati coll.,' p. 12—e. Ecuador; ♂ ad.

Thamnophilus rufiventer Cornalia, *loc. cit.*, —e. Ecuador; ♀.

A male and female from Puerto Indiana belong to this east-Ecuadorian form which has been recorded already from Nauta, also on the north bank of the Amazon in northeastern Perú.

SPECIMENS EXAMINED

M. q. quixensis.—ECUADOR: Río Suno above Avila, 1 ♂, 3 ♀; lower Río Suno, 1 ♂, 3 ♀; mouth of Río Curaray, 6 ♂, 2 ♀; mouth of Lagarto Cocha, 1 ♂; below San José, 3 ♂, 4 ♀; "Ecuador," 1 ♀. PERÚ: Puerto Indiana, 1 ♂, 1 ♀.

M. q. albicauda.—PERÚ: Río Tavara, 2 ♂, 1 ♀.

M. q. intercedens.—PERÚ: Sarayacu, lower Ucayali, 1 ♂, 3 ♀; Orosa, Río Amazonas, 1 ♂, 1 ♀.

M. q. nigriventris.—PERÚ: Río Comberciato, 1 ♂.[1]

M. q. bicolor.—BRAZIL: Rio Tapajoz (left bank), Igarapé Brabo, 5 ♂, 5 ♀; Boim, 1 ♂; Igarapé Amorín, 2 ♂, 1 ♀; Limoãl, 1 ♀; Villa Braga, 1 ♀; Rio Madeira, Borba, 10 ♂, 5 ♀; Porto Velho, 2 ♂; Igarapé Auará, 7 ♂, 1 ♀; Rosarinho, 2 ♂, 2 ♀; Rio Roosevelt, "Camp 16," 1 ♂; Arumanduba, 1 ♂; Villa Bella Imperatríz, Rio Amazonas, 5 ♂, 5 ♀. BOLIVIA: lower Río Beni, 1 ♀.

M. q. emiliae.—BRAZIL: Rio Tapajoz (right bank), Aramanay, 2 ♂, 2 ♀; Tauarý, 3 ♂, 2 ♀; Rio Xingú (right bank), Tapará, 1 ♂, 2 ♀.

Formicivora rufa urubambae, new subspecies

TYPE from Santa Ana, Urubamba Valley, Perú; elevation 3500 ft. No. 145,133, Americon Museum of Natural History. Adult female in worn plumage collected July 16, 1916, by Chapman and Cherrie.

DIAGNOSIS.—Somewhat intermediate in coloration between *F. r. rufa* (=*rufatra* auctorum) of southern Brazil, and *F. r. chapmani* (=*rufa* auctorum) of Santarem, but larger than either. Upper side and tail more as in *rufa*. Under parts more as in *chapmani*, but black streaks of the females a trifle narrower (much broader than in *rufa*).

RANGE.—Urubamba Valley, Perú.

DESCRIPTION OF TYPE.—Back Tawny x Ochraceous-Tawny; top of head duller, Tawny x Tawny-Olive, with shafts inconspicuously darker, browner; rump and upper tail-coverts Cinnamon. Lores blackish on lower portion; upper part whitish, continued over the eye in a broad white superciliary line, reaching the hind neck and varied over the auriculars by blackish shaft stripes; eyelids white except for dusky anteocular and postocular spots; rest of sides of head, chin, throat, breast, and upper half of abdomen with broad blackish shaft stripes margined with white; sides similar, but tipped with the color of the back; flanks Cinnamon-Buff; lower abdomen paler; under tail-coverts somewhat darker and browner with white tips. Thighs dusky at base and tipped with white on inside of leg, with Cinnamon-Buff on exterior of leg. Middle rectrices tinged with Verona Brown on basal half, blacker distally and narrowly tipped with white; lateral margins basally the color of the back; remaining rectrices a little more blackish, laterally margined like the middle pair and progressively more widely tipped with white, widest on three outer pairs; outermost pair with a narrow external margin of white. Remiges dark brown, exteriorly margined with

[1]Specimen in U. S. National Museum, Washington.

lighter brown, a little darker than the back. Greater upper wing-coverts more sooty brown, with pale brown outer margins and broad white tips; lesser and most of median coverts blacker subterminally, without brown margins, and with triangular white tips; primary-coverts similar with a touch of buff on white tips on inner webs; alula blackish with broader white tips; innermost lesser coverts white; scapulars like back with faint traces of subterminal black and terminal white markings on the outer webs of some of them, near the tips. Under wing-coverts and axillars white; inner margins of quills pinkish white. Bill and feet blackish (in dried skin). Wing, 55 mm.; tail, 58; exposed culmen, 14.5; culmen from base, 17; tarsus, 22.

REMARKS.—A second female not fully adult but in molt has the upper side in fresher plumage and decidedly darker, nearest Russet x Cinnamon-Brown, with dusky shaft markings more pronounced. Lower under parts a little deeper, Clay Color.

Males similarly variable above; a worn specimen is pale and a freshly molted one dark, matching the two females. Superciliary line and eyelids white as in females. Rest of sides of head, chin, throat, breast and middle of abdomen pure black; bordered all around by a broad white line meeting the posterior end of the superciliary stripe. This white stripe is edged exteriorly with Cinnamon-Buff, including the tips of the feathers on many of the white areas of sides and flanks. Under tail-coverts, tail, wings, and wing-coverts as in the female. Wing, 56, 56.5 mm.; tail, 58; exposed culmen, 14, 15; culmen from base, 18, 18.25; tarsus, 23, 24.75.

Sclater and Salvin's record of *rufatra* from Maranura belongs with the new form.

The study of the comparative material listed below has brought to light an unfortunate situation which calls for correction. Wied, in 1831, described two females, which he obtained in the inner regions of Bahia, as *Myiothera rufa*. In 1837, D'Orbigny and Lafresnaye named the bird found in Chiquitos, eastern Bolivia, *Thamnophilus rufater*. In 1916, Cherrie described a new form from near Santarem, Brazil, as *Formicivora rufa chapmani*, comparing it to Matto Grosso skins. Hellmayr, in 1924, recognized the existence of two distinct forms in Brazil (and Bolivia) and, finding certain Bahia skins distinct from southwest-Brazilian and Bolivian examples and agreeing with a Santarem example, placed *chapmani* as a synonym of *rufa* and recognized "*rufater*" as a separate conspecies. The two types of Wied's *rufa* are before me and serve as the basis for the present discussion, since they are decidedly of the lightly streaked form which ranges across southern Brazil and Bolivia, and very distinct from a series of Santarem specimens. It seems to be unavoidable, therefore, to submerge *rufatra* under *rufa* and to recognize *chapmani* as distinct.

If these types are truly from Bahia they must be from some extreme southern locality. I have no females from the eastern coast to help solve the difficulty, and a number of males from that region are not at all helpful. Two males from southern Piauhy, one male from Espirito Santo, and one from São Paulo all approach the Matto Grosso males more closely than they resemble the Santarem specimens, though Hellmayr, in 1929, describes females from southern Piauhy as being more heavily streaked than Matto Grosso skins and thus like Santarem specimens. Probably this region is one of intergradation where various stages of intermediacy may be found. In view of Hellmayr's study of Piauhy females, I refer the two males at hand from that region to *chapmani*, though they are unidentifiable as such by themselves.

In accordance with the 'International Rules of Zoological Nomenclature,' it is necessary to use the name *Formicivora* for this genus since it is not preoccupied by *Formicivorus* Temminck, 1807 (=*Myrmornis* Hermann, 1783).

SPECIMENS EXAMINED

F. r. chapmani.—BRAZIL: Altar do Chao, Santarem, 1 ♂ (type); Santarem, 7 ♂, 6 ♀, 1 (?); "Gilbues" (=Gilboez), Piauhy, 2 ♂.

F r. rufa.—BRAZIL: (Bahia), 2 ♀ (types); Lagôa Juparaná, Espirito Santo, 1 ♂; Franca, São Paulo, 1 ♂; Campanario, southern Matto Grosso, 1 ♂; São Francisco Ranch, 1 ♂; Chapada, 4 ♂, 1 ♀; Urucum, 3 ♂, 4 ♀; Descalvados, 1 ♂; Tapirapoan, 1 ♂; Campos Novos, 1 ♂, Palmira, Rio Taquary, 1 ♀.

F. r urubambae.—PERÚ: Santa Ana, Urubamba Valley, 1 ♂, 1 ♀ (type); Chauillay, 1 ♂, 1 ♀.

Hypocnemis cantator peruviana Taczanowski

Hypocnemis cantator, peruvianus TACZANOWSKI, 1884, 'Orn. Pérou,' II, p. 61—Yurimaguas, n. Perú; Warsaw Mus.

A good series of specimens from different parts of northern Perú south of the Amazon and Marañón rivers shows considerable variation in both sexes but no differences that are associated with distribution. Consequently, I am unable to recognize any separable subspecies in this part of the range, including also western Brazil in the neighborhood of Teffé.

The same can not be said of examples from other parts of Brazil south of the Amazon and east of Teffé which heretofore have been referred to *peruviana*. Ninety skins from the Madeira, Tapajoz, Xingú, and Tocantins rivers and from Matto Grosso show several well-marked lines of divergence in coloration, each of which occupies a different geo-

graphical area, though specimens from the peripheries of these areas show strong tendencies toward the adjacent forms. For one of these forms, an early name has been found which I believe is applicable to the form in question; the others are described below as new. Brief notes are added on the other members of the species, of all of which a critical examination has been made in the course of this study.

I have included in the species the various members of the "*flavescens*" group which I am convinced are conspecies of *cantator*, *peruviana*, and *notaea*. A more detailed discussion of this proposal will be given in the account of *collinsi*.

The present subspecies, *peruviana*, appears to be confined in Perú to the valleys of the lower Huallaga, Ucayali as far south as the mouth of the Urubamba, their affluents, and the adjacent portions of the south banks of the Marañón and Amazon, and eastward across the Javari and the Juruá at least to Teffé, Brazil. Records in Perú, other than the specimens listed hereunder, are from Yurimaguas, Xeberos, Chyavetas, Chamicuros, Santa Cruz (Huallaga), Samiría, and the Río Javari.

Hypocnemis cantator saturata Carriker

Hypocnemis cantator saturata Carriker, 1930, Proc. Acad. Nat. Sci. Phila., LXXXII, p. 368, Voca, Río Curaray (=mouth of Río Curaray), Ecuador; ♂ ad.; Acad. Nat. Sci. Phila.

This form was described from insufficient material, and most of the characters ascribed to it are useless, being found in equal prominence in typical *peruviana*. In a series of fifty-three skins from Colombia, Ecuador, and Perú north of the Amazon, there is only one male which has more black on the breast than some typical *peruviana;* there is only one which has the belly pure white (as is sometimes the case in *peruviana* also), while most of the birds from both north and south of the Amazon have the belly distinctly yellowish; in neither group is the pale area of the belly more restricted than in the other. The buffy tips of the secondaries are present in some Ecuadorian skins though possibly more often strongly developed in *peruviana*. The single character mentioned by the describer that is of particular service in distinguishing an Ecuadorian form is the average depth of the rufous color of the flanks and crissum. This color is slightly deeper in some birds from north of the Amazon than in those from south of it, but there is much overlapping. The same may be said of the color of the tail. Similarly among the females, this character is observable, though it is not constant. There is no difference in the color of the secondaries and tertials in the two series, nor in the

amount of black streaking on the mantle, though more of the Ecuadorian birds show a minimum of marginal white on the interscapular feathers.

Several females from Zamora, Ecuador, are more heavily marked with black on the breast than the average, but some of the series of *peruviana* are hardly less heavily marked. The ground color of the breast in most of the Ecuadorian females is, however, more strongly buffy than in the average of typical *peruviana*.

Probably, in view of the apparent separation of the ranges, it may be as well to recognize *saturata*, though many of the skins are not perfectly determinable. One difficulty lies in the fact that the specimens from Moyobamba and nearby localities are nearly topotypical of *peruviana* but are somewhat closer to *saturata* taxonomically than are birds from the Ucayali, though some of the latter are hardly distinct. If *saturata* is to be recognized, its range includes all of eastern Ecuador, southeastern Colombia, and Perú north of the Amazon. Records not included in the subjoined list of specimens examined are from Pebas.

Hypocnemis cantator implicata, new subspecies

TYPE from Igarapé Auará (near Borba), Rio Madeira, Brazil. No. 279,549, American Museum of Natural History. Adult male collected February 25, 1930, by the Olalla brothers.

DIAGNOSIS.—Similar to *M. c. peruviana* but upper parts, especially of the females, less heavily marked, though more so than in typical *cantator;* wings and tail less rufescent than in *peruviana;* flanks slightly paler rufescent; females warmer (less grayish) brown above; middle of belly whiter in both sexes.

RANGE.—Lower Rio Madeira, Brazil; westwardly intergrading with *peruviana* and eastwardly with *striata*.

DESCRIPTION OF TYPE.—Top of head and neck with a central stripe of white, bordered laterally on each side with a broad stripe of black; lores largely white, continued over the eye to the nape in a white superciliary stripe; lower part of lores dusky; a broad postocular stripe blackish; general color of mantle gray, most of the feathers with black or blackish shaft-stripes, often bordered on the inner margins of the feathers with a white or whitish edge, sometimes obsolete; an extensive patch of white concealed at the bases of the feathers; scapulars also with some blackish striping terminally; rump slightly more rufescent than Brussels Brown. Throat white, with fine, blackish, hairlike tips; breast similar, with blackish tips broader and with some dusky shaft-lines near the tips; sides of the breast white, with broad blackish shaft-stripes; middle of belly white on upper portion, tinged with yellow posteriorly; flanks and under tail-coverts Mars Yellow x light Antique Brown; thighs buffy brown; remiges largely blackish with tertials and outer margins of primaries and secondaries Raw Umber x Dresden Brown; margin of outermost primary paler, buffy; tertials with traces of ochraceous tips, lesser upper wing-coverts blackish, with rounded white spots at tips; median series similar but with an olive-brownish tinge subterminally; greater series more rufescent brownish with terminal spots larger and buffy; primary-

coverts rufous brown, with slightly paler tips; alula with outer margin broadly white; under wing-coverts buffy white; inner margin of remiges Cartridge Buff. Tail rufous Brussels Brown, with buffy tips and dusky subterminal bars, obsolete on the middle pair, broadest on outermost. Maxilla blackish (in dried skin); mandible whitish; feet dull grayish-brown. Wing, 57 mm.; tail, 40.5; exposed culmen, 14; culmen from base, 17.75; tarsus, 20.

REMARKS.—Females with central stripe on top of head and neck pale buff; lateral stripes Raw Umber, the feathers each with blackish shaft-lines which are much broader on the posterior ones; superciliary stripes becoming buffy posteriorly; mantle Dresden Brown x Brussels Brown, with not very prominent buffy marginal stripes on inner webs near the tips of the feathers and dusky subterminal stripes on the shafts; very slight traces of white concealed near the bases of the interscapular feathers. Buffy tips and blackish subterminal spots on tail somewhat less conspicuous than in the male. Pale terminal spots on lesser and median upper wing-coverts buffy white; those on greater series orange-buff. Sides of breast tinged with buff. Otherwise about like the males in coloration and size.

Females from Rosarinho, left bank of the Madeira, show approach toward *peruviana* in the slightly more pronounced dusky markings on the upper surface which, in turn, is a trifle grayer brown than in birds from the east bank. The males have the ground color of the upper surface somewhat less rufescent in tone. Both sexes show the belly frequently tinged with yellow. The general characteristics, however, remain those of *implicata*.

Skins from Villa Bella Imperatríz, between the Madeira and the Tapajoz rivers on the south bank of the Amazon, show a distinct tendency toward *striata* of the Tapajoz, but they are closer to *implicata*, while birds from the left bank of the Tapajoz are unquestionably referable to *striata*. It is unusual to find the separation between two subspecies taking place between two of the adjacent major rivers such as the Madeira and the Tapajoz; usually the river forms the dividing line. Occasionally, however, the distinction occurs as shown here.

One of the interesting things about the present form is the apparent regularity of its variation in the direction of the adjacent conspecies as it approaches their ranges. It is not, however, an intermediate between *striata* and *peruviana* in its general appearance so much as between *striata* and *cantator*. It reaches its highest development on the east bank of the lower Madeira but varies one way or another as it extends east or west of that particular region. Southward, it appears to reach the lower portion of the Rio Roosevelt. A male and a female from the Infernas

Rapids seem to belong to *implicata*, though a female from higher up the river at "Camp 9" (Roosevelt Expedition) is quite different and inseparable from the Matto Grosso form which is described later in this paper.

Hypocnemis cantator striata (Spix)

Thamnophilus striatus Spix, 1825, 'Av. Bras.,' II, p. 29, Pl. xl, fig. 2; no locality (I suggest Santarem); (♀); type lost.

Fifteen males and ten females from both banks of the Tapajoz show such marked differences from examples from all other localities that their recognition as a distinct subspecies becomes desirable. The males have the mantle as deeply black as the head and have the hind neck and anterior part of the mantle not duller or grayer; the white of the concealed interscapular patch is extensive and is continued along the inner margin of the feathers in a sharply defined white border reaching nearly to the tips of the feathers; the rump is dark (though dull) rufescent brown; the wings and tail are noticeably rufescent brown; the subterminal blackish spot on the rectrices is strongly developed; the dusky tips and shaft-lines on the breast are unusually heavy and blackish. The females are quite strongly and sharply streaked (not spotted) on the back with broad black shaft-streaks on somewhat rufescent brown ground; the rump is relatively rufescent; the wings and tail are more rufescent than in the males; the central stripe of the head is deep buff and the lateral stripes are rufescent brown with blackish shaft-stripes; the general appearance is distinctly brownish, much warmer and less grayish on the whole upper head and mantle than *peruviana*.

In looking for an available name for these birds, I was struck by the appropriateness of that given by Spix to a specimen which he obtained on his travels in Brazil. Since the specimen seems to have disappeared, it is not available for examination, but the description and even the poor figure which Spix gave in his account of the birds of Brazil are in better agreement with the east-Tapajoz birds than with those of other regions. The characterization of "supra rufescens, rufofulvo nigroque maculatum vel variegatum" does not fit *cantator*, *implicata*, nor *peruviana* but it does fit the birds under discussion. The figure of Spix's type shows a bird with a brown mantle streaked with black, though the streaks are not so pronounced as in the females at hand; neither are the streaks shown on the head as well defined as they actually are in the females of any of the conspecies of *cantator*. Since Spix visited Santarem, whence I have examined various specimens, there is reason to believe that he may have secured the form there to which I believe his name is applicable.

Probably the range of *striata* extends eastward to the left bank of the Xingú. I have seen no specimens from that far to the eastward. Across the Xingú, another conspecies is found which I describe hereunder.

Hypocnemis cantator affinis, new subspecies

TYPE from Baião, Rio Tocantins, Brazil. No. 248,893, American Museum of Natural History. Adult male collected December 23, 1931, by Alfonso M. Olalla.

DIAGNOSIS.—Very similar to *H. c. implicata* (from whose range it is separated by the interposition of *striata*); males slightly more strongly streaked with white on the mantle and with the scapulars and inner greater wing-coverts more pronouncedly rufescent or brownish; females with even less evident traces of buffy marginal streaks on the mantle than in the females of *implicata*, and no dusky shaft-stripes; remiges slightly more rufescent in both sexes.

RANGE.—Rio Xingú (right bank) to the Rio Tocantins, Brazil.

DESCRIPTION OF TYPE.—General description as for type of *H. c. implicata* (antea, p. 11) but general tone of mantle noticeably brown except for the black-and-white area which may be restricted to the center of the interscapulars; scapulars more uniform and brownish; whitish borders of the central interscapulars more often reaching practically to tips of feathers. Wing, 55 mm.; tail, 40; exposed culmen, 13.25; culmen from base, 17.5; tarsus, 20.75.

REMARKS.—Females about as described for females of *H. c. implicata* but mantle more uniform brown with very faint traces of a short buffy line on the inner margins near the tips of a few feathers and no dusky subterminal shaft-streaks.

This form is so nearly like some skins of *implicata* that the characters might be considered of doubtful significance if it were not for the separated ranges. Nevertheless, the differences appear to be fairly constant, and sometimes pronounced. It is impossible to confuse either *affinis* or *implicata* with *striata* which occupies the intervening area except where *implicata* approaches the range of *striata* and there acquires certain intermediate characters. Since I have no specimens from the left bank of the Xingú, I am unable to say whether a certain intermediacy between *striata* and *affinis* may not obtain in that area.

Hypocnemis cantator ochrogyna, new subspecies

TYPE from Tapirapoan, Matto Grosso, Brazil. No. 127,151, American Museum of Natural History. Adult male collected January 17, 1914, by George K. Cherrie; original number 17,752.

DIAGNOSIS.—Separable from all other known subspecies of *cantator* by the light ochraceous brown color of the upper parts of the females; both sexes with flanks averaging paler rufous than in most of the other races, darker than in *flavescens*, *subflava*, and *collinsi*; males somewhat like those of *similis* but with less rufous wings and tail, and with rather more black on the mantle, which usually is more prominently streaked with white.

RANGE.—Western Matto Grosso, Brazil, near the headwaters of the Rio Sepotuba and Rio Roosevelt; probably also the upper Rio Madeira and northeastern Bolivia.

DESCRIPTION OF TYPE.—Median stripe of the top of the head and neck, superciliaries, and lores Clay Color x Cinnamon-Buff; forehead largely deep Clay Color; broad lateral stripes on top of head and neck dark Sudan Brown with blackish shaft-lines, broadest on posterior feathers; auriculars Pinkish Buff; anterior malar region buffy white; dusky submalar line inconspicuous. Back bright Dresden Brown with suggestions of dusky shaft-spots on some feathers and a few subterminal stripes on the inner margins; rump and upper tail-coverts brighter (Buckthorn Brown x Antique Brown). Throat white with faint, dusky, hairlike tips; sides of throat tinged with buff; breast buffy white with dusky terminal margins heavier than on throat; sides of breast light Pinkish Buff with dusky terminal margins and broad blackish shaft-stripes; abdomen buffy white; flanks and under tail-coverts deep Ochraceous-Buff. Remiges Olive-Brown, margined exteriorly with Dresden Brown x pale Brussels Brown; tertials with suggestions of buffy tips; lesser upper wing-coverts blackish brown with pale buffy tips; median series browner and greater series still browner, both with pale buffy tips; under wing-coverts buffy white; inner margins of remiges Pale Ochraceous-Buff; tail light Brussels Brown with buffy tips. Wing, 56 mm.; tail, 41; exposed culmen, 13; culmen from base, 17; tarsus, 21.

REMARKS.—Males in general are as described for *H. c. implicata* but mantle with very pronounced black shaft-stripes bordered on the inner margins of the feathers with white, on the outer margins with brownish gray; anterior portion of mantle with less black and white and with more gray; margins of remiges and tail near Dresden Brown; flanks pale as in the female; breast moderately heavily streaked.

A male and a female from the upper Rio Roosevelt are slightly different from the Tapirapoan skins but are easily referable to the same form as distinguished from the other conspecies. Both have the flanks slightly deeper in color and the markings on the breast somewhat heavier. On the other hand, a pair from the lower Rio Roosevelt are more like *implicata* which inhabits the east bank of the lower Rio Madeira into which the Rio Roosevelt empties. I have not seen specimens from the upper Rio Madeira, but Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 3, p. 241, footnote *b*, 1924) notes the pale flanks of birds from this region and from Yuracares, Bolivia, which would seem to indicate association with the present form.

The exact locality meant by "Yuracares" is somewhat in doubt. D'Orbigny obtained the specimen in what he designated as the territory of the Yuracares Indians north of Cochabamba. On his travels from Cochabamba to this region he descended into the lowlands and wandered as far northward as Trinidad on the Mamoré. Since the skin, as reported by Hellmayr, agrees with the upper Madeiran birds, and since

twelve skins from a little farther south, on the Chaparé, are all of another form, it seems probable that "Yuracares" is north of the Chaparé. In any case, there are no records of so-called *cantator* from the Chaparé or south of it in Bolivia. The Chaparé form is discussed under the name *collinsi*.

Hypocnemis cantator collinsi Cherrie

Hypocnemis collinsi CHERRIE, 1916, Bull. Amer. Mus. Nat. Hist., XXXV, p. 395—Todos Santos, Río Chaparé, Bolivia; ♂; Amer. Mus. Nat. Hist.

Comparison of eighteen skins from Todos Santos, Bolivia, and southeastern Perú with a pair of *H. f. subflava* from Perené, Chanchamayo Valley, Perú, has shown certain differences which point to the validity of *collinsi*. The males are not sharply distinguishable, but the Chanchamayo specimen has the back of the neck and, to a lesser extent, the sides of the neck more strongly tinged with yellow; the remiges and rectrices are slightly more rufescent; the small, dusky, subterminal spots on the rectrices more pronounced and sharply defined; many of the interscapulars have both margins equally pale, making the streaking more distinct; the general tone of the back is more brownish, less grayish, olive; and the bill is somewhat more slender, though I suspect this last character to be an individual one.

The females offer better characters than the males, as is the case in most of the other conspecies. In *collinsi* the mantle has only obsolete dusky streaks but in the female of *subflava* there are very pronounced, broad, black streaks, almost as heavy as those of the male but with duller, brownish buff margins and only a faint trace of the pale yellowish interscapular patch; the margins of the mantle feathers are brighter, less grayish, than the corresponding portions of *collinsi*, and the wings and tail are warmer in tone; the pale central stripe of the head is a little whiter and more sharply defined; the sides of the breast are more heavily streaked; the flanks are slightly deeper in tone and more prominently streaked.

A female from the Río Colorado, Chanchamayo, in the Field Museum of Natural History, agrees in all of these characters with the Perené female, though it is in very poor condition and somewhat difficult to compare. Most of the interscapulars are missing and the relatively unmarked scapulars give a false impression that the back is unstreaked, but the few interscapulars that remain show the broad streaks of *subflava*. The other features are more readily discernible and substantiate the distinction of *subflava* and *collinsi*.

In both sexes the tone of rufescence is a little deeper (less ochraceous) than in *collinsi* from Bolivia, but the birds from southeastern Perú are intermediate in this respect. Similarly the southeast-Peruvian skins are intermediate in respect to the size of the bill, but in general coloration they are decidedly referable to *collinsi*. There is no zonal connection between the Chanchamayo Valley and southeastern Perú by which the ranges of *subflava* and *collinsi* can join except by way of territory inhabited by *peruviana* where that form alone has been found It seems, therefore, that *collinsi* and *subflava* are distinct geographically as well as morphologically.

While the association of *subflava* (and *collinsi*) with *flavescens* is obvious enough to require no further discussion, the same position of these three with reference to *cantator* has not been demonstrated heretofore. Nevertheless, I believe that this is the correct interpretation of the facts. The ranges of *flavescens* and of *subflava* and *collinsi* are separated by nearly the entire width of the Amazonian basin, and the existence of a geographically connectant form is highly probable. Such a form is found in *cantator*. The only other possible connectant is *hypoxantha*, but the available material of that group appears to show that it occurs in some localities with *flavescens*, though possibly in different ecological associations (cf. account of *H. h. hypoxantha*). In one of its subspecies it also occurs with one of the subspecies of *cantator* between the Tapajoz and the Xingú, which precludes the specific unity of these two groups.

In any case, the resemblance between the *cantator* and *flavescens* groups is closer than between *hypoxantha* and *flavescens*. Aside from the yellowish color of the under side of *flavescens* where *peruviana* is white, these two forms may be matched rather exactly in the material at hand; the upper sides of the two can be matched with no differences even in color. In *peruviana*, the yellowish tone of the abdomen in most specimens suggests the yellow of *flavescens*, though it does not reach the depth of tone shown by that form. With the other members of the *cantator* group, including *subflava* and *collinsi*, there is not the same similarity, but if the conspecific relationship of *flavescens* and *peruviana* is admitted, the other forms join the enlarged group through their relationship to these two conspecies.

Records from Perú which must belong to *collinsi* are from Yahuarmayo, Chaquimayo, Callanga, and Marcapata, and include also those of the Río Tavara and La Pampa skins now before me.

Hypocnemis cantator subflava Cabanis

Hypocnemis subflava Cabanis, 1873, Journ. f. Orn., XXI, p. 65—Monterico, Río San Miguel, Perú; ♂; Warsaw Mus.

I have a male and a female of this form from Perené, Chanchamayo Valley, Perú, and have examined, in addition, a male and a female from the same general region. The Chanchamayo Valley and the Río San Miguel (the type locality) are in adjacent drainage systems which unite to form the Ucayali, and specimens from the two regions are most likely to represent the same form. No females are known from the type locality, but the two I have examined from the Chanchamayo region agree with each other in the pronounced dorsal streaking in distinction from the more uniformly colored females of *collinsi* from extreme southeastern Perú and Bolivia (see account of *collinsi*).

The only additional record of this form is from La Merced, virtually identical with Perené and Río Colorado.

Hypocnemis cantator flavescens (Sclater)

Formicivora flavescens Sclater, 1865, Proc. Zool. Soc. London, "1864," p. 609—Marabitanas, Rio Negro, Brazil; ♀; British Mus.

A long series of one hundred and sixty skins from the Rio Negro and Rio Uaupés, Brazil, adjacent parts of the Uaupés in Colombia, and the upper Orinoco and Mt. Duida regions of Venezuela, permits a clear view of the characters of this form. There is considerable variation in the depth of coloration and in the alternate predominance of streaks and terminal bars in the dusky markings of the under parts. Although none of the skins shows the yellow of the under parts to be as pale or as largely replaced by white as it is in *peruviana* and *occidentalis*, in other respects it is possible to match skins of these three conspecies almost exactly. Since the strong tinge of yellow as shown on *peruviana* and *occidentalis* is not found in the east-Brazilian forms, it may be considered as constituting an intermediate character between the white of these forms and the yellow of *flavescens*.

Since *occidentalis* is found on the Caquetá and *flavescens* on the Uaupés, both in Colombia, it is probable that the ranges of these two may find their closest approximation on the Apoporis. Specimens from that region would, at least, be extremely interesting.

Hypocnemis cantator cantator (Boddaert)

Formicarius cantatar (err. typ.) Boddaert, 1783, 'Tabl. Pl. Enl.,' p. 44—based on "Le Carilloneur de Cayenne" of Daubenton, 'Pl. Enl.,' 700, fig. 2.

Five skins from Dutch and French Guiana and twenty-three from Obidos, Faro, and Manaos are at hand. Contrary to the usual account of this subspecies, all but two of the males of this series have a considerable patch of white concealed at the bases of the interscapular feathers; the dusky markings on the mantle, visible externally, are less prominent than in all other conspecies and are more in the nature of spots than streaks. The females also are very lightly marked above and are similarly spotted rather than streaked.

In the Amazonian drainage, this subspecies ranges west as far as the right bank of the Negro and its affluent, the Rio Branco. It should be expected from somewhat farther west about to Santa Isabel, though it has not been found there by our expeditions.

Hypocnemis cantator notaea Hellmayr

Hypocnemis cantator notaea HELLMAYR, 1920 (October), Anz. Orn. Ges. Bayern, III, p. 19—Mer umé Mts., British Guiana; ♂; Frankfort Mus.

Forty-seven specimens from British Guiana show the distinctness of *notaea* to be not always pronounced. Most of the specimens can be separated from the average *cantator* but some of them are not readily recognizable. On the other hand, a male of *cantator* from Pied Saut, French Guiana, is more deeply rufescent brown on the posterior parts than most *notaea*, and has the white patch of the interscapulars fully as well developed. The males of *notaea* usually have the back streaked more than in *cantator* and with more whitish margins on the feathers of the mantle, but the back is often only spotted and with gray margins; the concealed white patch on the mantle is usually larger but sometimes not so; the rufous tones of flanks, crissum, and rump are usually deeper and more intense than those of the same regions in *cantator*, but this also is not constant. However, most of the forms of *cantator* are subject to considerable individual variation which prevents the drawing of sharp lines, and since there is an average difference between this form and its conspecies it may be entitled to similar recognition.

SPECIMENS EXAMINED

H. c. notaea.—BRITISH GUIANA: Potaro Landing, 3 ♂, 7 ♀; Tumatumari, 13 ♂, 8 ♀; Minnehaha Creek, 2 ♂; Rockstone, Essequibo River, 1 ♂, 1 ♀; Essequibo River, 1 ♂, 1 ♀; Kamakusa, 3 ♂, 2 ♀; Demerara, 2.

H. c. cantator.—FRENCH GUIANA: Approuague River, Ipousin, 1 ♂; Pied Saut, 1 ♂; Tamanoir, 1 ♀. DUTCH GUIANA: Paramaribo, 2 ♂. BRAZIL: Faro, 9 ♂, 6 ♀; Manaos, 4 ♂, 3 ♀; Obidos, 1 ♂; Conceição, Rio Branco, 1 ♂[1], 1 ♀[1].

[1]Specimens in Field Museum of Natural History, Chicago.

H. c. affinis.—Brazil: Baião, Rio Tocantins, 3 ♂ (incl. type), 2 ♀; Cametá, 1 ♂; Tapará, Rio Xingú, 3 ♂, 1 ♀, 1 (?); Villarinho do Monte, 1 ♂.

H. c. striata.—Brazil: Santarem, 1 ♂, 1 ♀, 1 ♂[1], 1 ♀[1]; Tauarý, Rio Tapajoz, 3 ♂, 4 ♀; Aramanáy, 1 ♀; Igarapé Brabo, Rio Tapajoz (left bank), 5 ♂, 3 ♀; Igarapé Amorín, 2 ♂; Limoãl, 1 ♂; Boim, 1 ♂; Santa Elena, Rio Xamauchim, 1 ♀.

H. c. implicata.—Brazil: Igarapé Auará, 3 ♂ (incl. type); Santo Antonio de Guajará, 1 ♂, 2 ♀; Borba, 5 ♂, 2 ♀; Infernas Rapids, Rio Roosevelt, 1 ♂, 1 ♀; Villa Bella Imperatríz, Rio Amazonas, 7 ♂, 3 ♀; Rosarinho, Rio Madeira (left bank), 16 ♂, 12 ♀.

H. c. ochrogyna.—Brazil: Tapirapoan, Matto Grosso, 3 ♂, 1 ♀ (type); Morinho Lyra, 1 ♂; "Camp 9," Rio Roosevelt, 1 ♀.

H. c. collinsi.—Bolivia: Todos Santos, 9 ♂, 3 ♀. Perú: La Pampa, 2 ♂, 1 ♀; Río Tavara, 2 ♂, 1 ♀.

H. c. subflava.—Perú: Perené, 1 ♂, 1 ♀; Río Colorado, 1 ♀[1]; Chanchamayo, 1 ♂.[1]

H. c. peruviana.—Perú: Río Seco, w. of Moyobamba, 4 ♂, 2 ♀, 1 (?); Río Negro, w. of Moyobamba, 2 ♂; Moyobamba, 3 ♂[1], 1 ♀[1], 1 (?)[1]; Puerto Bermúdez, 1 ♂[1]; Lagarto, Río Ucayali, 8 ♂, 4 ♀; Sarayacu, 12 ♂, 10 ♀; Orosa, Río Amazonas, 1 ♂, 3 ♀. Brazil: Teffé, 6 ♂, 5 ♀.

H. c. saturata.—Perú: Puerto Indiana, 9 ♂, 5 ♀; Apayacu (=Anayacu), 1 ♂, 1 ♀. Ecuador: Mouth of Río Curaray, 7 ♂, 3 ♀; mouth of Lagarto Cocha, 1 ♀; below San José, 2 ♂, 1 ♀; lower Río Suno, 2 ♂, 1 ♀; Río Suno above Avila, 3 ♂ 3 ♀; Zamora, 4 ♂, 6 ♀. Colombia: La Morelia, 3 ♂, 1 ♀.

H. c. flavescens.—Colombia: Río Uaupés, opposite Tahuapunto, 1 ♀. Brazil: Rio Uaupés, Tahuapunto, 2 ♂, 3 ♀; Rio Negro, Mt. Curycuryari, 2 ♀; Yucabi, 2 ♂, 1 ♀; Camanaus, 1 ♀; San Gabriel, 3 ♂, 4 ♀; Santa Isabel, 1 ♂, 2 ♀. Venezuela: Mt. Duida, upper Orinoco, Río Cassiquiare, etc., 128 skins of both sexes; La Union, Río Caura, 3 ♂, 1 ♀; Suapuré, 2 ♂, 1 ♀; Boca de Sina, 1 ♀; Río Caura, 1 ♂; mouth of Río Chanaro, 1 ♀.

Hypocnemis hypoxantha hypoxantha Sclater

Hypocnemis hypoxantha Sclater, 1868, Proc. Zool. Soc. London, p. 573, Pl. xliii—Upper Amazons; ♂; British Mus.

In a series of thirty-seven skins from both sides of the Amazon in Perú, eastern Ecuador, eastern Colombia, and the right bank of the Rio Negro in Brazil, I can find no positive differences worthy of recognition by a separate name. The females from the Rio Negro, Brazil, may be a trifle browner on the back than the Peruvian birds, but the difference is not notable and the males are inseparable. Incidentally, the Rio Negro specimens extend the known range of this subspecies far to the eastward but not far enough to adjoin the area inhabited by the single conspecies *ochraceiventris*.

There appear to be various conflicts between this species and *cantator* in their distribution so that, although *hypoxantha* seems to fill

[1]Specimens in Field Museum of Natural History, Chicago.

a hiatus in the known distribution of the forms of *cantator*, there is too much overlapping to permit the specific association of these two groups.

There is a specimen of *h. hypoxantha* from Mt. Curycuryari at an elevation of 2500 feet, and there are two skins of *c. flavescens* from the same mountain at an elevation of only 500 feet, but both localities are in the Tropical Zone. From northwest of the mountain, at Yucabi, there are several skins of *flavescens* and others from the Rio Uaupés, while there are various skins of *hypoxantha* from Tatú at the mouth of the Uaupés above Yucabi. Thus, while both forms were not secured at identical spots, the localities for each are so intermixed that the ranges must overlap unless there are ecological associations which might segregate different habitats throughout the same general area. Thus *H. h. hypoxantha* appears to overlap *c. flavescens* in the vicinity of Mt. Curycuryari, Brazil, and merges with the range of *c. saturata* and *c. peruviana* in eastern Ecuador and eastern Perú, while *H. h. ochraceiventris* and *c. striata* occupy, in part at least, the same region of the lower Amazon in Brazil. Unless some distinctness can be shown in the ecological preferences of the two groups where they occur together, it will be impossible to unite them specifically.

Hypocnemis hypoxantha ochraceiventris Chapman

Hypocnemis hypoxantha ochraceiventris CHAPMAN, 1921, Amer. Mus. Novit., No. 2, p. 5—Altamira, Rio Xingú, Brazil; ♂; Mus. Goeldi.

A number of additional specimens from the east bank of the Rio Tapajoz confirm the characters of this excellent subspecies.

SPECIMENS EXAMINED

H. h. hypoxantha.—PERÚ: mouth of Río Urubamba, 1 ♂, 2 ♀; Apayacu (=Anayacu), 7 ♂, 2 ♀. ECUADOR: mouth of Río Curaray, 1 ♀. COLOMBIA: La Morelia, 1 ♀. BRAZIL: Tabocal, Rio Negro, 1 ♂; Tatú, 8 ♂, 3 ♀, 2 ?; Yavanari, 1 ♂; Mt. Curycuryari (2500 ft), 1 ♀; Igarapé Cacao Pereira, 2 ♂, 4 ♀; Mirapinima, 1 ♀.

H. h. ochraceiventris.—BRAZIL: Altamira, Rio Xingú, 1 ♀ (paratype); Tauarý, Rio Tapajoz, 1 ♂; Piquiatuba, Rio Tapajoz, 2 ♂, 1 ♀; Caxiricatuba, 3 ♂, 1 ♀.

Hypocnemoides melanopogon occidentalis, new subspecies

TYPE from Puerto Indiana, Río Amazonas, Perú. No. 231,905, American Museum of Natural History. Adult female collected July 1, 1926, by Carlos Olalla and sons.

DIAGNOSIS.—Similar to *H. m. melanopogon* from Guiana but males duller bluish-gray on the back, darker gray on the breast and flanks, and decidedly less whitish on the abdomen; females duller gray above, with the throat feathers usually much

more strongly tipped with dark gray and with broader gray bases, giving the throat a distinctly (sometimes very heavily) barred appearance; breast-feathers more broadly tipped with dark gray and with the terminal band usually extended backward on both lateral margins, leaving a central, rounded spot of white or buffy white; flanks darker and more broadly olive grayish.

RANGE.—Río Napo in Perú and Ecuador, extending northeastward to the upper Rio Negro (right bank), Brazil, and, in a modified degree (approaching typical *melanopogon*), into southeastern Venezuela as far as the Caura Valley; southward reappearing on the upper Ucayali.

DESCRIPTION OF TYPE.—Upper surface mostly dull Slate Gray; lores faintly whitish; auriculars Slate Gray with shafts basally white; malar region, chin, and throat subterminally whitish, with broad gray tips (Deep Neutral Gray x Iron Gray) and gray bases, giving a distinctly barred appearance to the area; breast-feathers with pale guttate centers (slightly buffy), margined terminally and laterally with brownish gray, somewhat tinged with buff on lower breast where the central spots are less sharply defined; sides of breast more uniform brownish gray; flanks like sides, broadly brownish gray; middle of belly narrowly whitish; under tail-coverts pale buffy. Remiges brownish black, externally margined with dark bluish gray and with a broad terminal band and a black subterminal bar; alula with broad white outer margin; under wing-coverts dull, pale brownish, more grayish near the carpal edge of the wing; inner margins of primaries whitish. Tail blackish, with white tips on the rectrices about 1 mm. wide; upper tail-coverts blackish with faintly bluish gray margins. Maxilla and feet blackish brown (in dried skin); mandible whitish. Wing, 60 mm.; tail, 31; exposed culmen, 15; culmen from base, 18.25; tarsus, 19.

REMARKS.—Males like the females above and on the wings; lores not touched with white but slaty gray; auriculars gray, without white shafts; malar region gray; chin and throat sooty black, forming a patch which is graduated rather abruptly into the Dark Gull Gray x Slate-Gray of the breast, sides, and flanks; belly Dark Dull Gray x Deep Gull Gray, in young birds paler than the breast (sometimes Gull Gray in young birds) with very faint indications of paler tips not always distinguishable; under tail-coverts like the belly, with white tips more pronounced; entire bill brownish black. Size same as that of the females.

The series of females exhibits a certain amount of variation which becomes more pronounced and shows more frequent departure from the standard of the type the greater the distance from the type locality to the northeastward. The birds from Perú and Ecuador are the most strongly marked (except one young female which is distinctly lighter than the others though still separable from *melanopogon*). Birds from the west bank of the upper Rio Negro and the Rio Uaupés in Brazil are more like the paler Peruvian specimens, and skins from Venezuela are like the paler Brazilian examples. Some of the most lightly marked females from Venezuela are not very distinct from the same sex of typical *melanopogon* but others are not greatly different from the light-

est Peruvian females and the males from the same region retain the darker belly of *occidentalis*. If a larger series from Perú and Ecuador should show a great preponderance of the extremely heavy coloration of the type and some of the paratypes, it might prove desirable to recognize a separate subspecies from the Venezuelan region but at present there is just enough overlapping of characters to render this course of doubtful advisability.

A most interesting discovery has been that of the presence of pure silky white on the interscapulars of some of the specimens from Venezuela. Many of the skins of both sexes from this and other regions have the bases of the interscapulars very pale gray contrasting sharply with the slaty gray of the tips, and often with a dusky mark between the two contrasting areas. In addition, two males and three females show varying amounts of definite white, contrasting with the pale gray of the bases of the feathers and of the same nature as, though of lesser extent than, that in the allied species, *H. maculicauda*. The amount of white on the tips of the rectrices does not, however, show a corresponding increase toward the greater extent exhibited by *maculicauda*.

These are the first records of a form of *melanopogon* from Perú or Ecuador. The skin from Lagarto, upper Ucayali, is particularly interesting since it comes from an area apparently cut off from the principal range of *occidentalis*. Between Lagarto and Puerto Indiana, on the north bank of the Amazon, lies nearly the entire course of the Ucayali, inhabited by *maculicauda*, and yet the Lagarto specimen is one of the most heavily marked of the examples of the new form, though not fully adult. It can not be referred to *maculicauda*. More material from this region might help to a better understanding of this divided range, but at present the skin must be referred to *occidentalis*.

H. m. melanopogon approaches the range of *occidentalis* most closely on the Rio Negro in Brazil. Spreading southward from the Guianas, *melanopogon* extends westward along the left bank of the upper Rio Negro to San Gabriel, across the Negro from part of the area occupied by *occidentalis*. A series of both sexes from the right bank of the Negro near its mouth (Mirapinima and Igarapé Cacao Pereira) definitely belongs to *melanopogon* and shows that this form crosses the river somewhere between its mouth and the junction of the Branco.

South of the Amazon, *melanopogon* occurs between the Tocantins and the Xingú and again between the Tapajoz and the Purús, leaving the region from the right bank of the Tapajoz to the left bank of the Xingú to be occupied by *maculicauda*, as is the Pará District to the right

of the Tocantins. With a single exception, I know of no records of the two species from the same locality. The exception is that of Cachoeira, upper Purús, given by Madame Snethlage, who points out elsewhere that different habitats are favored by the two birds. It is possible that the two Cachoeira birds may not be exactly coincident. With this exception, the ranges of *maculicauda* and *melanopogon* interlace but do not overlap. This may be highly significant in view of the occurrence of white on the interscapulars of some *occidentalis* as recorded above.

I must confess to considerable doubts about the application of the name *melanopogon* (cf. Hellmayr, Novit. Zool., XIV, p. 381, 1907). Even though Sclater's original description was based largely on Guiana and Cayenne specimens, it included a description (however incomplete) of a skin from Chamicuros, Peru, which is the only locality mentioned in the original account. It is difficult to see how even the author himself is empowered subsequently to designate as type a specimen from outside the originally cited range of his species. That Sclater had doubts about the propriety of this action is, I think, shown by his still later citation of the Chamicuros bird as type ('Cat Birds Brit. Mus.,' XV).

However, there is no explicit rule covering the case and some confusion undoubtedly would result from transferring the name *melanopogon* to the bird found at Chamicuros, now known as *maculicauda*. Consequently, I shall adhere for the present to the nomenclature now current for the two forms in question.

Specimens Examined

H. m. melanopogon.—British Guiana: Tumatumari, 3 ♂; Rockstone, Essequibo River, 1 ♀. Dutch Guiana: Lelydorp, 1 ♂; Paramaribo, 1 (?). Brazil: Faro, 6 ♂, 2 ♀, 1 (?); Rio Negro, Mirapinima, 5 ♂, 5 ♀, 1 (?); Igarapé Cacao Pereira, 1 ♂; Santa Isabel, 1 ♂, 1 ♀; San Gabriel, 2 ♀; Rio Tocantins, Baião, 4 ♂, 3 ♀; Ilha Pirunhum, 1 ♀; Arumatheua, 1 ♀; Mocajuba, 1 ♂, 2 ♀; Rio Xingú, Tapará, 1 ♂, 3 ♀; Villarinho do Monte, 5 ♂; Limoãl, 1 ♀; Caxiricatuba, 1 ♂; Rio Amazon (south bank), Villa Bella Imperatriz, 5 ♂, 3 ♀; Rio Madeira, Igarapé Auará, 1 ♂, 1 ♀; Borba, 3 ♂, 1 ♀; Rosarinho, 1 ♂, 3 ♀.

H. m. occidentalis.—Perú: Puerto Indiana, 2 ♂, 6 ♀ (incl. type); Lagarto, upper Ucayali, 1 ♀. Ecuador: mouth of Río Curaray, 1 ♂. Brazil: Rio Negro, Yavanari, 1 ♂, 3 ♂; Tabocal, 1 ♀, 1 (?); Rio Uaupés, Tahuapunto, 1 ♂, 1 ♀. Venezuela (not typical): Río Cassiquiare, Mt. Duida, and upper Orinoco, 95 skins of both sexes; La Cascabel, Río San Feliz, 1 ♂; Suapuré, 2 ♂; La Unión, Río Caura, 2 ♂.

Hypocnemoides maculicauda (Pelzeln)

Hypocnemis maculicauda Pelzeln, 1868, 'Orn. Bras.,' II, p. 164—Villa Maria (=San Luis de Caceres), Matto Grosso, Brazil; Vienna Mus.

With the small series of this form available for study, even though a variety of localities is represented, it is not possible to form a satisfactory judgment regarding its affinities, distribution, and variations. The females from the Tapajoz appear to be slightly paler above than the Peruvian females and to have lighter, less conspicuous lunules on the breast and less noticeable dark tips on the feathers of the throat. The single female from Matto Grosso, which is the most nearly topotypical one, is not in very good condition and is exactly intermediate in characters, having the throat unmarked but the breast feathers heavily tipped, while the back also is dark.

The Tapajoz males are slightly paler above than the Matto Grosso male (the Peruvian male is immature), but a male from Bolivia (not quite adult) is like the Tapajoz specimens. There is no difference in the amount of white on the tips of the rectrices in the birds of either sex from all parts of the range, though Hellmayr (Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 3, p. 246, footnote *a*, 1924) found indications of more extensive white in birds from the Tapajoz and Perú and of less extensive white in those from Matto Grosso and the Rio Machados, Brazil. A good series from the type locality will be necessary to determine whether the various differences noted indicate racial distinction or merely individual variation and, if the former, whether the Peruvian or the east-Brazilian extreme is to be referred to typical *maculicauda*.

The range of this species in Perú is fairly compact though curiously irregular. It embraces Nauta and Elvira on the north bank of the Marañón but does not extend much farther eastward on that bank of the river, being replaced on the Napo by *H. melanopogon occidentalis*. It crosses the Marañón to the east bank of the Huallaga at Chamicuros and thence extends eastward to the lower Ucayali and the Javari in Perú, and, in Brazil, to São Paulo de Olivença on the south bank of the Amazon. Near this point it appears to leave the vicinity of the Amazon and, for a space, to retire to the upper reaches of the rivers. It is recorded from the Juruá, from the upper Purús, the upper Guaporé, and the upper Paraguay rivers in Brazil, and is found on the Chimoré in Bolivia, avoiding that portion of the Amazonian basin west of the Tapajoz which is occupied by *H. m. melanopogon*. It then reappears between the Tapajoz and the Xingú, and again east of the Tocantins, but is not found between the Xingú and the Tocantins where *melanopogon* is again interposed.

Possibly the various localities all are connected in an irregularly outlined area, but as at present known they occur in detached and scattered groups, though there are no records of *melanopogon* to cut off the possible lines of communication. The only disturbing factor is the occurrence of *melanopogon occidentalis* on the upper Ucayali where it is cut off from the main part of its own range by the interposition of *maculicauda* on the lower Ucayali, but this problem exists regardless of the connected or disconnected range of *maculicauda*, so far as present information shows.

Further discussion of the relationship of *maculicauda* and *melanopogon* is given in the account of *H. melanopogon occidentalis*.

Peruvian records are from Chamicuros, Cashiboya, Río Javari, Nauta, and Elvira.

SPECIMENS EXAMINED

H. maculicauda.—BRAZIL: Descalvados, Matto Grosso, 1 ♂, 1 ♀; Rio Tapajoz, Tauarý, 1 ♂; Caxiricatuba, 2 ♀; Isla de Goyana, 1 ♀; Igarapé Brabo, 1 ♂. BOLIVIA: Mission San Antonio, Río Chimoré, 1 [♂]. PERÚ: Sarayacu, Río Ucayali, 1 ♂, 2 ♀.

Myrmochanes hemileucus (Sclater and Salvin)

Hypocnemis hemileucus SCLATER AND SALVIN, 1866, Proc. Soc. Zool. London, p. 186—lower Ucayali, Perú; ♂; British Mus.

Terenura melanoleuca PELZELN, 1868, 'Orn. Bras.,' II, p. 84—Borba, Rio Madeira, Brazil; ♂; Vienna Mus.

Myrmochanes hypoleucus ALLEN, 1889, Bull. Amer. Mus. Nat. Hist., II, p. 95—Reyes, Bolivia; ♂; Amer. Mus. Nat. Hist.

Up to date only five males of this species have been recorded and the female has remained unknown though three names have been given to the males from different localities. I have before me fourteen males, including the type of *M. hypoleucus* Allen and fourteen females from a number of regions and though little can be added to the known facts of distribution, various taxonomic details are worthy of comment.

The females resemble the males very closely but may be recognized by several peculiarities. The lower mandible is pale in the females, black in the adult males. The females have a broad white stripe from the nostril through the upper loral region to above the middle of the orbit; the adult males have the same region black or with only a suggestion of white behind the nostril. The adult males have a solidly black outer (upper) margin on the sides of the breast continuous with the black of the sides of the neck; the females have the margin narrower and

more or less broken into streaks. The adult males have the lower flanks and crissum pure white or lightly tinged with creamy buff; the females have this buffy tinge more pronounced. The crest on the head, the white patch concealed on the mantle, the white spots on wings and tail, and the size are alike in both sexes. Young males resemble the females, if the young birds at hand are correctly sexed, but have the buffy tone of the posterior under parts deeper, sometimes quite ochraceous.

It may be found necessary to recognize an eastern subspecies from the Rio Madeira, for which the name *melanoleuca* is available. The specimens from that region are purer white below with no buffy tone on the crissum of the adult males and not a very deep tone in the adult females. The type of *hypoleuca* from Bolivia agrees with the Rio Madeiran males. The Peruvian and Ecuadorian birds all show traces of ochraceous buff on the crissum, strongest in the females. Since this is also a criterion of age, it is better to let the final decision await an even larger series. There still remain uncertainties regarding the distribution of this species. The Rio Madeiran range is, no doubt, continuous with the Bolivian range through the Rio Beni, an affluent of the Madeira. The Ucayali and Napo ranges in Perú and Ecuador are connected across the upper Amazon. There is no information at hand, however, to show how the Bolivian and Peruvian ranges may come together, and it may well be that if *melanoleuca* is recognized, its range will remain separated from that of *hemileuca*.

Specimens Examined

M. hemileuca.—Perú: Lagarto, upper Ucayali, 1 ♂, 2 ♀; Santa Rosa, Ucayali, 1 ♂; Puerto Indiana, 2 ♂. Ecuador: mouth of Río Curaray, 1 ♂, 4 ♀. Bolivia: Reyes (type of *M. hypoleucus*), 1 ♂. Brazil: Santo Antonio de Guajará, 8 ♂, 7 ♀, 1 (?).